Can We Hold the Hills? Garlic Mustard at Effigy Mounds NM

Land managers of the East and Midwest know garlic mustard (Alliaria petiolata) as an invasive forb of forests. It grows well in the shade of forest canopies. Established garlic mustard plants contain and release compounds that reduce the plant's palatability to herbivores and inhibit germination of other plant species around them. The legacy of garlic mustard includes changes in the soil biota, such as reducing mycorrhizal

fungi that have beneficial relationships with numerous forest plants. All of this can lead to a reduction in plant cover and diversity in forests.

Workers at EFMO have turned one of garlic mustard's advantages against the plant. Garlic mustard photosynthesizes in spring before other plants have germinated or sprouted, and into winter after other plants have died back. During these periods, workers apply glyphosate to the leaves to kill the plant. Applications during spring and winter are designed to prevent damage to surrounding native plants that are dormant. Additional treatment can be done during the usual growing season, when crews rely on propane torches to ignite and consume garlic mustard fruits, each containing hundreds of viable seeds. Effigy Mounds NM has used these techniques over the last four years with permanent and seasonal park staff, Student Conservation Association interns, and crews of the Conservation Corps of Iowa

and Minnesota Conservation Corps participating in control efforts. As with all invasive plant management efforts, the question arises, "Can we be successful?" In fact, NPS management policies require that parks only undertake invasive plant projects where success is probable. While this 2,000 acre project certainly pushes the boundary of perceived feasibility, the efforts at EFMO have had resounding success. Monitoring in 2006 and 2010 showed an almost 50% decrease in cover of garlic mustard in the monument. To make this estimate, surveyors with the HTLN walked the same routes

across the entire park during both years. While the effects of garlic mustard on native plant and soil communities will likely persist even after its removal, managing the plant in the rugged hills and on a relatively large scale at EFMO appears to be possible with a sustained, coordinated effort.

— Craig Young and Rod Rovang